Index

Algebraic concepts Calculator procedures, 80-81 equations, 7, 82 graphing, 6, 16, 76-78, 123-29, 131, formulas, 82, 134-35 136-37, 138-44, 145-47, 152 functions, 7, 121-29, 131-37, 148 order of operations, 6, 12, 68-69 identities, 18, 134 programming, 93, 124-27 inequalities, 133-34 replay, 71-76 matrices, 112-19 trace, 77, 139 order of operations, 6, 12, 15, 68-69 zoom, 131, 149 symbol sense, 16, 132, 153 Calculus variables, 7, 74-76 derivatives, 145, 150 Algebra operations integrals, 145-47 calculator algebra systems, 94-95, 145 limits, 18, 136, 154 guess and test, 71, 94 Cobweb diagrams, 123-27 polynomial symbol manipulation, 17-18, Continued fractions, 244-45 133 - 36Curriculum and instructional change, 27-Applications, 12, 19-20, 102-10, 112-19, 28, 217-25, 226-31 120 - 29primary, 1-3, 36-37 Arithmetic concepts and understanding, elementary, 165-76, 177-80, 195-99, 202-7, 208-12 24-26, 227-30 decimals, 4, 10, 36, 56-64, 179 secondary, 14-22, 186, 212-15 fractions, 6, 179, 237, 239 collegiate, 131-37, 145-56 integers, 6, 36, 40-41, 179 irrational, 15, 20-21 Data analysis number sense, 3, 15, 56-57, 233, 239 collection, 102, 117 Arithmetic operations correlation, 105-6 accuracy, 15 curve-fitting, 19-20, 101-11, 117-19 estimation, 1-4, 5, 16, 62, 180-81, 197, display, 102-4 234, 236 interpretation, 102-11 mental, 1-4, 5, 46-49, 180-81, 198, 233 Difference equations, 120-29 operation sense, 5, 41-43, 59-64, 226-Dynamical systems, 120, 130 29, 239 paper-and-pencil algorithms, 1-4, 5, 24-26, 34, 46-49, 83, 177-82, 226-30 Function concepts Access to technology, 9, 27, 84, 148, 183, continuity, 20 187, 205, 208-15 domain, 132, 135 Assessment with calculators graph, 14-22, 131-37, 141-44, 145-47, calculator active items, 159-60, 162-64, 152 - 53169, 183, 192 inverses, 141-42 calculator inactive items, 159-60, 162limits, 4, 18, 136, 241-44 Function types 64, 169, 183, 192 exponential, 19-20, 93-94, 109-10, 121, calculator use policy, 160-61, 165-76, 177-85, 186-93, 230-31 classroom strategies, 12, 21-22, 48-51, linear, 7, 20, 76-78, 104-9, 124, 131, 138 150 parametric equations, 19, 138-44, 150 standardized testing, 21, 23-26, 158, polynomial, 17, 94-95, 132

165-76, 186-93

quadratic, 125-27, 132, 143

trigonometric, 18, 96, 122-24, 132, 134-35

Games, 3-4, 221-23, 233-45 Graphing cobweb diagrams, 121-29 functions, 7, 14-22, 76-78, 95-99, 121-29, 131-37, 145, 152-53 parametric equations, 19, 150 scales, 16-17, 136-37, 153 zooming, 131, 153

Iteration, 122, 243. See also Recursion

Matrices operations, 112–15 representing data, 113 solving systems of equations, 118 Modeling, 19–20, 106–7, 113–19, 120–29

Numerical tables, 69–71, 98 Numeration decimals, 15 place value, 37–40, 57–59, 238, 239, 240 scientific notation, 15, 81 whole numbers, 37–40

Polar coordinates, 142 Problem solving arithmetic, 4-6, 24-26 strategies, 5, 71-74, 226 Professional development administrators, 165–76, 203–4, 211, 223 teachers, 35–36, 184–85, 202–3, 214, 218–25

Recursion, 19, 121, 243. See also Iteration Research on calculators access and use, 27–28, 84–85 attitudes, 25, 26, 29, 85–86, 156, 165, 201, 230 concepts, 24–26, 43, 86–88, 95–97, 155, 201, 229 curriculum, 27–28, 155 policies, 27, 158 problem solving, 24–26, 87–88, 201, 229 skills, 24–26, 86–88, 201, 229

School change strategies, 33–36, 44, 165, 195–99, 202–7, 209–16, 226–31 Sequences, 240 Student traits and classroom roles confidence, 11, 198 exploration, 11, 37–40, 93–95 persistence, 6, 11

Teacher classroom roles, 35–36, 97–100, 229–31
Trigonometry functions, 18, 95-99, 122–24, 134–35, 141–42 graphs, 98, 135 identities, 18, 98–99, 134

